

CLAIMS

I claim:

- 5 1. A method for abating contamination present within a cavity in a structure,
comprising at least one of the steps of:
 evacuating contaminated air in the cavity in a controlled manner to limit contamination to
ambient environment;
 removing contaminants from a contaminated surface in the cavity in a substantially non-
10 destructive manner; and
 treating the contaminated surface in the cavity to limit spreading of contaminants and re-
contamination of treated surface.
2. The method as in claim 1, wherein the cavity is partially or completely enclosed
15 by the structure.
3. The method as in claim 2, wherein the structure is at least one of a permanent,
semi-permanent and temporary structure.
- 20 4. The method as in claim 3, wherein the cavity is defined at least one of within a
wall, above a ceiling and below flooring.

5. The method as in claim 1, wherein the evacuating step limits flow of contaminated air into the ambient environment.

6. The method as in claim 5, wherein the evacuating step further comprises the step
5 of removing contaminants from the drawn air.

7. The method as in claim 1, wherein the evacuating step comprises the step of establishing a pressure gradient in the cavity.

10 8. The method as in claim 7, where the pressure gradient is established by providing one or more inlet openings and one or more outlet openings in the structure in flow communication with the cavity, and drawing air through said one or more outlet openings.

9. The method as in claim 8, wherein the evacuating step further comprises the step
15 of pumping air into the inlet openings to increase airflow through the cavity to flush out the contaminated air present in the cavity.

10. The method as in claim 7, wherein the evacuating step evacuates contaminated air in a closed loop process.

20 11. The method as in claim 1, wherein the removing step comprises the step of introducing a biocide into the cavity.

12. The method as in claim 11, wherein the removing step further comprises the step of establishing a pressure gradient in the cavity to facilitate dispersal of the biocide in the cavity.

13. The method as in claim 1, wherein the removing step comprises the step of
5 applying high frequency radio wave that is capable of penetrating the structure beyond which the contaminants are present, and that is capable of eradicating contaminants.

14. The method as in claim 13, wherein the high frequency radio wave is of the type capable of heating the contaminants to destroy the contaminants.

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15. The method as in claim 14, wherein the high frequency radio wave comprises microwave.

16. The method as in claim 1, wherein the removing step is undertaken in conjunction
15 with the evacuating step.

17. The method as in claim 16, wherein the removing step is undertaken after the evacuating step.

20 18. The method as in claim 11, wherein the biocide is introduced into the cavity in at least one of a mist, powder, granule, spray, vapor, foam, fog, gas, liquid, and other formats and phases.

19. The method as in claim 11, wherein the biocide comprises an active ingredient that is in at least one of the following categories of materials: (a) oxidizers, (b) surfactants, (c) toxic metal donors, and (d) metabolic toxins.

5 20. The method as in claim 19, wherein:

the oxidizers include at least one of bromine, N-bromoacetamide, 3-bromo-1-chloro-5,5-dimethylhydantoin, hydrogen peroxide, hypochlorite bleach solution, iodine, N-bromoacetamide, and ozone;

10 the surfactants include at least one of lauryl pyridinium chloride, quaternary ammonium salts, quaternary ammonium solutions, higher molecular weight alcohol, and d-limonene;

the toxic metal donors include at least one of borax (sodium tetraborate decahydrate), disodium octaborate tetrahydrate, boric acid, calomel (mercurous chloride), copper hydroxide, copper sulfate, maneb, mancozeb, sulfur, and zineb; and

15 the metabolic poisons include at least one of benomyl, captan, captafol, cyanides, sulfides, and streptomycin. Other substances, compounds and elements falling within the general categories or otherwise compatible could be used, and is well within the scope of the present invention.

21. The method as in claim 20, wherein the biocide contains TIM-BOR® as an active
20 ingredient.

22. The method as in claim 1, wherein the treating step comprises the step of introducing a lock-down material into the cavity.

23. The method as in claim 22, further comprising the step of establishing a pressure gradient the cavity to facilitate the dispersal of the lock-down material in the cavity.

5 24. The method as in claim 22, wherein the lock-down material provides a barrier on the contaminated surface of the cavity, against dispersal from the contaminated surface and re-contamination of the surface.

10 25. The method as in claim 22, wherein the lock-down material is introduced into the cavity in at least one of a mist, powder, granule, spray, vapor, foam, gas, fog, liquid, and other formats and phases.

15 26. The method as in claim 22, wherein the lock-down material includes a material within at least one of the following classes of materials (a) substituted ethylene ($C=C$) monomers; and (b) cyanoacrylic based adhesive.

27. The method as in claim 26, wherein the substituted ethylene monomers include at least one of styrene and butadiene.

20 28. The method as in claim 1, wherein the treating step is undertaken in conjunction with the evacuating step.

29. The method as in claim 28, wherein the treating step is undertaken after the
evacuating step.

30. The method as in claim 1, wherein the treating step is undertaken in conjunction
5 with the removing step.

31. The method as in claim 30, wherein the treating step is undertaken after the
removing step.

10 32. The method as in claim 1, wherein the treating step is undertaken in conjunction
with the evacuating step and the removing step.

33. The method as in claim 32, wherein the treating step is undertaken after the
evacuating step and the removing step.

15 34. The method as in claim 1, wherein the contamination is associated with an
undesirable substances.

35. The method as in claim 34, wherein the contamination is associated with a
20 harmful substance that has harmful health effects on humans and/or other living beings.

36. The method as in claim 35, wherein the harmful substance includes a harmful organism that is at least one of a saprophytic organism, a parasitic spore-producing organism, and an organisms that lack chlorophyll.

5 37. The method as in claim 35, wherein the harmful organism includes at least one of fungus and bacteria.

38. The method as in claim 37, wherein fungus includes at least one of mold, mildew, rust, yeast, mushroom, smut, and any mycotoxin, spore, scent, and byproduct produced and/or
10 released by the fungus.

39. A method for abating contamination of a contaminated surface of an opened structure, comprising the steps of:

modifying the open structure into a closed structure enclosing the contaminated surface,
15 thereby forming a cavity above the contaminated surface; and
abating contamination present within the cavity by applying the method as in claim 1.

40. The method as in claim , wherein the modifying step comprises the step of providing a hood to form the closed structure.

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41. A system for abating contamination, comprising:
means for evacuating contaminated air in a controlled manner to limit contamination to ambient environment;

means for removing contaminants from a contaminated surface in a substantially non-destructive manner; and

means for treating the contaminated surface to limit spreading of contaminants and re-contamination of treated surface.

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42. The system as in claim 41, wherein the contaminated surface is located in a cavity in a structure.

43. The system as in claim 41, wherein the contaminated surface is a surface of an
10 open structure; and wherein the system further comprises means for modifying the open structure into a closed structure enclosing the contaminated surface, thereby forming a cavity above the contaminated surface.

44. The system as in claim 43, wherein the modifying means comprises a hood
15 structure.